

## The Challenge of Technology Transfer: Buying in Without Selling Out

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Highly effective technologies flowing from the discipline of behavior analysis have not been widely adopted, thus threatening the survival of the discipline itself. An analysis of the contingencies underlying successful technology transfer suggests the need for direct, empirical involvement in the marketplace in order to insure that the maximum demonstrable benefits reach the ultimate users. A successful example of this strategy of technology transfer is provided. Three areas of intense national concern—urban violence, illiteracy, and declining industrial productivity—provide immediate opportunities for the technologies of behavior analysis to secure the place of the discipline in the intellectual mosaic of the 21st century.

Nearly five years ago, Skinner (1981a) confronted us with the the question, "We happy few, but why so few?" Since 1981, our discipline, and particularly the Association for Behavior Analysis (ABA), have made progress toward answering this question, or at least diminishing the need to ask it. Moreover, in the last couple of years, the sphere of influence of behavior analysis has broadened both within and outside the academy.

For instance, a healthy synergism is developing between behavior analysis and cultural anthropology. The provocative contributions of Glenn (1986) and Malagodi (1986) from our side have now been reciprocated by Marvin Harris' invited address at the 1986 ABA convention (Harris, 1986). The invitation to Professor Harris was activated in large part by the thoughtful yet soothingly reassuring reviews of his work published by Lloyd (1986) and Vargas (1985). I believe we have forged an alliance that is likely to endure to our mutual benefit.

With respect to the culture at large, ABA has taken some definitive steps to begin helping the press educate the public as to who we are and what we have to offer. This is beginning to bear some positive fruit as Matt Israel's recent media exposure demonstrates (Sherr, 1986). In

addition, Paul Chance, in a recent piece in *Psychology Today*, eloquently discredited the obituary for behaviorism that many conventional psychologists seem to have a compulsion to recite. Finally, a "watchdog" committee has been formed within ABA to respond to published inaccuracies concerning behavior analysis (see also Morris, 1985); the task of this committee is continuous and its workload heavy, but its function is vital.

### THE GREATER CHALLENGE

In the fall of that same year, 1981, it was my privilege to introduce Professor Skinner to approximately 6,000 adoring undergraduates and assorted others at the University of Florida. There he posed the question, "Why are we not acting to save the world?" (Skinner, 1981b). With respect to this challenge, our achievements in the last five years have not been as salutary. By and large, the innovations produced by our field are at least as effective, and almost as widely ignored, as they were five years ago. There has been a change in this period, however, and it is a change I find deeply distressing. As I talk with both the established leaders and the young new contributors to our field, I am occasionally struck by a new sense of pessimism, of weariness, that borders on apathy. My purpose today is to tell you that I believe I understand why that sentiment exists. I also want to tell you why I do not share it. On the contrary, I believe that the political and economic changes in the United States since

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1981 are just now coalescing in a way that is handing this field, almost on a silver platter, a set of unprecedented opportunities. If we can only seize these opportunities, I believe we can be well on the way to making behavior analysis the dominant intellectual force of the 21st century. To do so, however, I believe we must revise slightly the methods by which we conduct some of our basic affairs.

My entire analysis is predicated on just one assumption which Johnston and I tried to articulate in the first chapter of *Strategies and Tactics of Human Behavioral Research* (Johnston & Pennypacker, 1980). That assumption is simply this: *The extent to which a culture accepts, incorporates, and reflects a body of discovered knowledge varies directly with the technological benefits derived from that body of knowledge.* Renaissance Europe came quickly to appreciate the Copernican and Galilean revisions of classical astronomy once their implications for improved navigation, and hence for enhanced commerce, became available. Today, notwithstanding the opposition of Rifkin (1985), we are seeing the emergence of a major surge of support for molecular biology and genetics because their technologies have arrived. If we seek to establish behavior analysis as a serious intellectual force in this culture, we must insure that its technologies are adopted in ways that benefit the culture in unmistakable ways.

A large body of literature exists on the topic of technology transfer, knowledge utilization, innovation diffusion—call it what you will. I have sampled just enough of this literature to be assured of one thing: It is woefully naive with respect to the contingencies that operate in the real world. Put in its simplest terms, this literature seeks to formalize the relation between innovators and adopters in ways that would make the most casual behavior analyst cringe. Rather than mock the imprecision of such terms as “needs assessment matrix,” “hierarchical diffusion network,” and the like, it is sufficient to point out the lack of any analysis specifying the contingencies responsible for the behavior of either the innovator or

the adopter. Such an analysis, when performed even superficially with respect to some of the more notable innovations from behavior analysis, illuminates a fundamental problem.

Our technologies have almost uniformly been service-oriented. Applied behavior analysts have typically assumed the role of service providers, whether in the traditional mental health field, business and industry, or education in all of its subvarieties. Many contemporary behavior analysts—and I include Lindsley, Ayllon, Michael, Houghton, Azrin, Baer, Risley, Keller, Wolf, Englemann, Vargas, the list goes on and on—came out of the laboratory with more precise and more effective ways of managing the behavior of selected populations. These innovators, and I include myself on this dubious honor roll, tried to provide a better service. Not surprisingly, we were treated like servants, perhaps because we behaved like servants. We went on bended knee to the lords of the manor and begged them to try our innovations. In virtually every case, the innovations did what we said they would. Psychotic patients began to behave normally (Ayllon & Azrin, 1965; Lindsley, 1956). The untrainable were trained to perform simple tasks and then later more complex tasks (Baer, Peterson, & Sherman, 1967; Fuller, 1949). The educationally disadvantaged were given a head start that persisted through elementary school and removed their disadvantage (Becker, 1978; Williams & Evans, 1972). Juvenile delinquents have been restored to integrated functioning and are now leading the lives of productive citizens (e.g., Phillips, Phillips, Fixsen, & Wolf, 1971). The chronically unemployed have learned to seek and secure jobs (Jones & Azrin, 1973). College students recruited solely for their athletic prowess learned college-level material and earned degrees (Keller, 1968; Pennypacker, Heckler, & Pennypacker, 1978).

Why, then, have not these innovations transformed the institutions in which they occurred and revolutionized their respective domains of service delivery? The answer, I believe, is deceptively simple:

The behavior of the potential adopters, the lords for whom we were the servants was, and is, controlled by a set of metacontingencies, largely ceremonial, which bear no necessary relation to any behavior change we might have engineered. To recall the analogy of pre-Renaissance Europe, we made the mistake of expecting the Church not only to adopt our innovations, but to alter their own conduct to conform with the world view upon which the innovations were predicated. Galileo learned first-hand the consequences of that mistake. We are re-learning it in the case of Project Follow Through (Becker, 1978; Carnine, 1984; Greer, 1982; Watkins, 1986).

One of the most distressing, and instructive, phenomena attendant to behavioral innovation is that instead of being ignored, it is often systematically dismembered and rendered impotent by those whom we would have adopt it. As Lindsley is fond of pointing out, application of our two most basic behavioral processes—reinforcement and punishment—has essentially been declared illegal in facilities that derive their support from state or federal sources (e.g., Lindsley, 1984, 1985; see Friedman, 1975). Our third most powerful tool, our objective measurement strategies, have in the name of expedience and economy been so compromised that their current use is usually more ceremonial than functional (Johnston & Pennypacker, 1980, pp. 327–374). It is as though we gave our masters an intricate timepiece and then watched approvingly as they removed the back, extracted the mechanism and threw it away, but retained the case, with the hands and face in a conspicuous place, available for exhibition on demand. Some accuracy, of course, is retained—even a stopped clock is right twice a day.

What must we do to change this situation? How are we to avoid this fate for future innovative behavioral technologies? I hope you agree that unless we find a way to avoid it, our discipline itself is at risk. The economies of both the United States and the world are adjusting to the joint perils of expanding population and diminishing natural resources and will not

long provide sustenance to an intellectual endeavor that is irrelevant to both.

My answer to this question should by now be obvious. We must change the way our technologies are transferred. Some of us must be willing to undertake the process of technology transfer ourselves, if only to learn how to do it correctly. We must stop waiting for or trying to persuade others to do it for us. We must set as our highest priority the delivery of the full measure of benefit of our technologies. In accepting this challenge, we must be prepared to identify, analyze, and convert to our own use the real contingencies which operate in our culture. Some of these contingencies, though very powerful and pervasive, may be a little unfamiliar.

### THE CONTINGENCIES OF THE MARKETPLACE

We live in a capitalistic society. I state that as a fact, not as a resolution subject to debate. I would also suggest that to an increasing degree, the rest of the world is beginning to move in the same general direction. Again, it is not my purpose to debate the philosophical merits of this state of affairs. I simply observe, along with Harris (1981), that cultures gravitate toward practices that maximize the density of reinforcement for the individual members. In general, the unrestricted marketplace constitutes an environment in which effective technological variation is differentially selected by more-or-less natural contingencies. That is, a product, process, or procedure that is incrementally reinforcing, either positively or negatively, will tend to survive at the expense of its less reinforcing competitors. To be sure, the system is less than perfectly efficient, but its elements are especially effective with respect to the evolution of technologies. Put another way, if behavior analysis is to survive, its technologies must survive—in the marketplace. We must, therefore, design our technologies with this type of survival as the objective and we must be prepared to do whatever is necessary to get them directly to the consumers where their

competitive advantage can be realized. I believe that the failure to date of our technologies to have the impact we would have anticipated is a direct consequence of our failure to insure their survival at this level.

Let me attempt to clarify certain aspects of this analysis. When I use the term *marketplace*, I am not referring to the office of the university dean, the superintendent of the state-run retardation center or mental hospital, or the staffs of either departments of health and human services or departments of education. I am referring to any environment in which our product, process, or procedure is selected over alternatives because it produces demonstrably greater benefit to the selector. When we speak of benefit in this context, it should be clear that often we are speaking primarily of economic benefit: Gaining or avoiding loss of money. At some future time, it may be possible to address the question of political benefit as a consequence for adopting effective behavioral technologies. I am afraid that for the moment, however, it is all too clear that in this society politics and economics are inseparable. If we wish to have a lasting political impact, we must first have an economic impact. To an increasing degree, the political system is controlled by the agents of economic power and influence (Goldstein, 1986).

### ECONOMICS AND BEHAVIOR ANALYSIS

According to classical economic theory, three ingredients are required for a successful economic enterprise: Land, labor, and capital. I submit that, as behavior analysts, we have nothing to be ashamed of with respect to the manner in which we create and manage the first two—land and labor. Land, or more generally raw resources, is well represented by our inexhaustible supply of innovations. At this very moment, I am aware of at least a half dozen excellent, innovative new behavioral technologies that have been created by members of ABA (e.g., Schulman, 1984). Undoubtedly,

there are many more. Our problem is not lack of a viable resource.

Labor, the next item on the list, is slightly more problematic. With our abundant presence in colleges and universities, we have access to a potentially large and certainly talented labor supply. We must continue, as we have, to develop that resource in support of our discipline and its enterprises. In particular, we must protect the positions of behavior analysts in the universities. There is pressure to make departments more cognitive, social, or clinical. We must resist this pressure at all costs because, according to recent manpower projections, a shortage of academic talent will exist in the early-to-mid-1990s. We should intensify our efforts in graduate student recruitment and training *now* so that behavior analysis will be represented when that shortage is filled. In other words, graduate students entering now will have jobs when they get their degrees. It is important that they are *our* graduate students.

We are also blessed with the skills and basic technologies for effectively managing indigenous labor supplies. The contribution of organizational behavior management to the success of other people's ventures can be cited without hesitation as proof of this assertion (see Frederiksen, 1982).

It is the third area, capital, where we, the servants, have been almost totally impotent. Lacking capital of our own, we have adopted, modified, and in some instances glorified the complex repertoire traditionally known as begging. Those who are following the budget deliberations of congress, particularly since the passage of Gramm-Rudman, will agree that the begging industry has fallen on hard times and that a massive turnaround is probably not imminent. I therefore believe that what federal money there is should be directed to basic research and I applaud the efforts of Branch, Catania, Iwata, Thompson, and all the others who are making sure the needs of behavior analysis are being heard. In the applied area, however, we

should reconsider the strategy of trying to get government to subsidize the transfer of our technologies.

Fortunately, there is an alternative. We have shown that we can create and validate technologies that can generate economic benefits. There exists in this country a vast number of people, with even vaster amounts of money, who are willing to risk some of that money if a reasonable probability exists for a positive return. These people are called investors and, as some of my colleagues and I discovered, a fairly orderly system exists whereby these individuals can be induced to participate with great eagerness in the process of technology transfer. To be sure, the ideals that you and I share for the greater glorification of the discipline of behavior analysis are not the basis on which a commitment of substantial investment money is made. Rather, that basis is simple greed or, as the *Wall Street Journal* might phrase it, the "realization of the American dream." No matter, the financial markets are a source of funding which we, as a discipline, have largely ignored. In my view, we can no longer ignore them if we are to survive. Now let me share with you an illustration of how this process works and how, if carefully managed, it can support the widespread adoption of an effective behavioral technology that might otherwise have languished in some bureaucratic purgatory.

### MAMMACARE: AN ILLUSTRATION

A group of us at Florida have been involved for the past several years in the development and distribution of a technology for teaching breast self-examination (BSE) as an aid to early detection of cancer (e.g., Adams, Hall, Pennypacker, Goldstein, Hench, Madden, Stein, & Catania, 1976; Bloom, Criswell, Pennypacker, & Catania, 1982; Hall, Goldstein, & Stein, 1977; Hall, Stephenson, Adams, Goldstein, Pennypacker, & Stein, 1980; Pennypacker, Bloom, Criswell, Neelakantan, Goldstein, & Stein, 1983; Pennypacker, Goldstein, & Stein, 1983).

Over the years, we have made a number of scientific and technical presentations of this work that need not be reiterated in toto (e.g., Saunders, Neelakantan, Criswell, Bloom, & Pennypacker, 1982). Let me simply summarize the essential features of the technology and then describe briefly how its transfer is being managed through application of the contingencies of the marketplace.

MammaCare is an individualized procedure for teaching BSE that was derived from a psychophysical and behavioral analysis of detecting small tumor simulations in a life-like facsimile of the human breast. There are four essential elements to the technology; each is unique to MammaCare, each contributes to the ultimate proficiency of the learner, and each is subject to being severed or compromised on the grounds of cost or perceived inefficiency:

(1) A series of patented, life-like breast models are used to establish the tactile discrimination between normal, nodular breast tissue and potentially harmful lumps (Madden, Hench, Hall, Pennypacker, Adams, Goldstein, & Stein, 1978).

(2) A technique of palpation and search provides maximally thorough examination of the breast tissue by the fingertips (Saunders, Pilgrim, & Pennypacker, in press).

(3) A system of precise direct measurement aids the trainer in shaping the skill to mastery level even as it provides documentation of the learner's proficiency (Pennypacker et al., 1983).

(4) A take-home kit contains a model matched to the user's own breast tissue characteristics of firmness and nodularity. This model provides reinforcement for the correct performance of the palpation and search skills and contributes to skill maintenance (Saunders, 1986).

When the basic research<sup>1</sup> was completed in 1981, we faced the problem of what to do with the products and results. Ordinarily, one would proceed to a clinical trial and thus postpone the issue of dissemination, but a proposal to accomplish that was not funded. Being sensitive to the fate of other effective behavioral technologies that had not transferred well,

<sup>1</sup> The basic research was supported by Grant No. CA-20791 from the Division of Cancer Control, National Cancer Institute, to the University of Florida.

we elected to undertake the task ourselves, setting as our objective the delivery of the benefits of the research to the maximum number of women, while allowing the minimum possible dilution in quality.

We formed the Mammatech Corporation late in 1981, raised a small amount of capital through private placement of stock in 1982, and completed a public offering of the stock early in 1983.<sup>2</sup> Sufficient capital was raised to support approximately five years of a novel undertaking—using the experimental method to teach ourselves how to transfer a behavioral technology to the marketplace without destroying it.

Our early experiences were both exhilarating and enlightening. Because our technology deals with a serious health problem of very high visibility, and because any publicly-owned company attracts a certain amount of media attention, we were, and continue to be, recipients of a great deal of favorable media exposure. This has been particularly instructive to the extent that it reflects public perceptions of what is valuable. For example, our measurement system, which I had expected would be the most fragile element to transfer, was recently emphasized in a *Self Magazine* (1986) feature.

Our first attempt at dissemination was a public relations triumph but a financial debacle. We launched a company-owned MammaCare Center in mid-town Manhattan, complete with national press (e.g., Nemy, 1983) and TV coverage (NBC's "Today Show" and CBS's "Morning News"), but quickly learned that MammaCare could not be priced affordably and delivered at full quality (about 1½ hours per patient) to generate enough revenue to offset the overhead that would have to include a major advertising budget.

We therefore shifted to a franchising strategy, licensing the technology to qual-

ified healthcare providers under agreements which specified strict adherence to our standards of quality. Through this mechanism, MammaCare is slowly spreading across the country; our basic licensing strategy has been broadened to include corporate medical departments and is now being supplemented by a version of MammaCare that can be rented by the licensees to patients for home use. This program is expected to increase volume while retaining quality control through the requirement of measurement and evaluation of each patient's proficiency by the licensee. Eventually, Mammatech might actually become profitable.

Let us now consider the three critical economic factors as they are manifest in the example we have been discussing. First, land—in this case, this is represented by our technology, MammaCare, which is owned by the Mammatech Corporation in the form of patents, trademarks, servicemarks, etc. Because we brought it directly to the marketplace, we retain control over its destiny. This is important because one of the ways we insure quality control is by carefully arranging the contingencies, through the licensing agreements, in which the right to share in the economic benefits is conjugately contingent upon proper utilization. As a discipline, we must constantly search for ways to convert our intellectual property in this fashion if we are to protect its integrity. Otherwise, as we have seen, anyone who can read can copy an effective behavioral technology, modify and dilute its essential elements until it is no longer effective, and then cite the result in support of arguments against us.

With respect to labor, Mammatech has concentrated its most intense efforts on the training of our licensees' employees. The quality of delivery of MammaCare to the public will never be better than the training we give the deliverers whom we then certify as MammaCare Specialists. To an unknown degree, we have also indoctrinated a cadre of budding behavior analysts in hospitals and clinics across the country. We have done this by ar-

<sup>2</sup> My colleague, Mark Kane Goldstein, is primarily responsible for both conceiving and executing this strategy.

ranging for them an experience that occurred for each of us. I have had more than one nurse tell me that the transformation in the behavior of patients as she was teaching them MammaCare had a profound change on the way she viewed life in general and education in particular. To paraphrase Fred Keller, when the teacher's behavior comes under the control of the positive behavior change of the student, the rest is easy (Keller, 1977). Just to make sure we retain some consequent control over the performance of our specialists, however, we have in place a corporate policy whereby the specialist receives a check for \$1,000 from the company whenever one of her patients discovers a breast cancer smaller than 1 cm.

The novel aspect of this whole operation is that, because we are a public company, the technology is literally owned by the shareholders. Through our stock offering, the investors gave us the money to carry out our business plan which, as you may properly assume, requires us to distribute MammaCare in such a way that the investors may realize a return on their investment. We have arranged matters such that this will only happen if MammaCare achieves its intended objective of reducing breast cancer mortality. This point is critical. Had we yielded to financial temptation and sold the technology to the highest bidder or diluted it and marketed some of its components in drugstores, it is doubtful that many women would have been helped, although a great deal of money might have been made. If we are truly concerned about the future of our discipline, I caution all of us to resist the temptation to release our technologies solely for material gain, even as we have all learned not to entrust them to bureaucrats who have no vested interest in seeing the discipline flourish. A technology simplified or dismantled for short term profit is no less damaged than one consigned to the corrosion of bureaucratic neglect.

By maintaining our position of control, however, we have created with MammaCare an opportunity to demonstrate to

the world the economic benefits of an effective behavioral technology. We are under no illusions that hospitals or physicians take MammaCare licenses solely because they wish to save lives. The simple fact is they do so because they wish to make, or at least avoid losing money. Almost without exception, they attempt to negotiate an exclusive territory and some have even refused to proceed without that provision in their contract. They are quite forthright in their justification for these demands: They want a competitive edge with respect to other health-care providers in the community. Our practice is to grant such exclusives in exchange for guarantees of larger numbers of women trained. Failure to meet these guarantees results in the loss of the exclusivity, but not in loss of the license.

Other economic advantages result from early detection of breast cancer, and hence additional incentives exist to adopt MammaCare. Health insurance carriers and companies who self-insure have a financial incentive to detect the occurrence of breast cancer among the insured as early as possible. Schwartz and Rollins (1985) present data derived from their experience at ARCO, a major oil producer with headquarters in the Los Angeles area. Briefly, the marginal cost to ARCO, which was self-insuring, of failure to detect earlier the six breast cancers which occurred in its workforce of approximately 10,000 women during one year was \$561,200. MammaCare could have been provided to this workforce for approximately \$150,000, thus generating a savings for ARCO of roughly \$410,000.

To assure these saving, of course, the complete benefit of MammaCare would have to have been available to all of the female employees. As the ultimately responsible source for MammaCare, we at Mammatech must constantly act to insure the full effectiveness of our training or else we cannot assure these benefits. Conversely, to the extent that we *can* assure these benefits, we can assure the ultimate success of the enterprise and, I hope, of the discipline to which it owes its existence. As I have said before, if you

can show how to save lives, you can get people to listen and talk. If you can show them how to make or avoid losing money, you can get them to act.

Finally, there is the financial benefit to our investors which we must consider. I take very seriously my obligation to make this company financially successful from the standpoint of the investors so that others among us will find it easier to use the same mechanism to bring effective behavioral technologies into widespread usage. Again, however, it will be up to all of us to insure the effectiveness of these technologies; we simply cannot entrust that responsibility to others who lack our training and perspective. The rest of the world will know only what happened; only we will know what was possible.

### CONCLUSION

I would like to conclude by calling attention to some areas of critical opportunity for those who share my entrepreneurial zeal and behavior-analytic idealism. Three items of intense national concern have emerged on the public agenda. All three have shown themselves highly resistant to the traditional social scientific solutions of the past, notwithstanding substantial federal efforts and funding.

The first of these is urban violence. In *America Now*, Harris (1981) attributes this to chronic unemployment within the urban subculture and suggests that only effective education and training will break the cycle. I agree. The second crisis in the national consciousness is the alarming and increasing adult illiteracy rate, as popularized by Kozol (1985). Again the obvious solution is *effective* education and training. The third area contains even more immediate opportunities for behavior analysts because of the direct and imminent threat to the economic health of the industrial elements of our society. The following quote is from a working paper currently being circulated by Paul Braden (1984), an Economist with the U.S. Department of Commerce.

There are major barriers to the full application of training technology that should be reduced or re-

moved. Recommended actions include reducing the market fragmentation barrier by promoting more Research and Development Limited Partnerships (RDLP's); avoiding the insufficient transfer of training technology by supporting a revised Training Technology Transfer Act; mitigating the threat of antitrust actions by publicizing the new antitrust legislation and the formulation of a training technology clearinghouse; and allaying the reluctance of those in charge of education and training to accept new technology by providing improved pre- and in-service training programs in the use of this technology. Supporting the application of appropriate individual or combination actions to advance education and training technology should be undertaken by the DOC Human Resource Development Task Force. Across the nation there is a rising consciousness about the importance of the human element in making U.S. firms more competitive. Still, the message is not widely endorsed, nor are the actions needed to bring it to fruition well understood. By upgrading human capital investment, by retraining and reintegrating older workers into the workforce, by making training funds more accessible to individuals and by bringing modern technology to bear on the training problem, significant progress in productivity is possible. In training, reskilling and upgrading human resource development, it is apparent that the private sector and the Federal government need to form a collaborative partnership in overcoming the problems highlighted. (p. 11)

The Department of Commerce has quite properly recognized that the ascendancy of the United States in the world economic arena has all but disappeared. We have squandered our resources and have relinquished to others our advantages in technological know-how and manufacturing efficiency. Like the declining Ancient Roman Empire and the modern British Empire,<sup>3</sup> ours is rapidly becoming a service economy that imports more and more of the manufactured goods needed for survival. We have now become the world's largest debtor nation. American industry is prepared to spend vast sums of money to improve the training of its workforce in an attempt to recapture its lost position as the world's supplier of markets for manufactured goods. Under the guidance of the Department of Commerce, it is also prepared to lavish these resources on the so-called cognitive sciences. I need not tell you what the con-

<sup>3</sup> I am indebted to Professor Richard T. Schneider of the University of Florida College of Engineering for bringing this to my attention.

sequences of that misjudgement will be, either for our discipline or for our culture.

We are being presented with an opportunity like none other in our history. A set of acute national needs exists that we are uniquely qualified to satisfy and, to an appalling degree, this fact is not known outside this audience. The efficiency and effectiveness of our training technologies can have an immediate economic impact which even the most recalcitrant bureaucrats would be forced to acknowledge. More importantly, our position in the mainstream of American life would be guaranteed, if we can muster the courage to manage our technologies as we know they must be managed if they are to be effective. We have mature, thoroughly validated technologies such as Direct Instruction (Englemann & Carnine, 1982), Personalized Systems of Instruction (Keller, 1968; Sherman, 1974), and Precision Teaching (Lindsley, 1971) that are fully capable of building behavior to quantitatively defined functional specifications. I believe this is a golden opportunity for behavior analysis to show what it can do. As Skinner might put it, we have an opportunity to help save the world. Let us seize this opportunity. Let us buy in without selling out.

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The United States Department of Commerce (with AT&T) sponsored a teleconference on the Retraining of America, broadcast on May 22, 1986. A six-hour videotape of the conference is available through the ABA central office for \$25 (plus postage and handling). For information, please write or call the ABA office, Department of Psychology, Western Michigan University, Kalamazoo, MI 49008 (616-383-0452).